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Review of Fatal Injuries in the Petroleum Industry for 1980

Statistics Department

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49TH ANNUAL REVIEW OF FATAL INJURIES AS REPORTED BY THE PETROLEUM INDUSTRY TO THE AMERICAN PETROLEUM INSTITUTE FOR 1980

On-Duty Fatalities

One hundred and two oil and gas companies and their subsidiaries, employing 445,000 workers, reported 66 on-duty fatal accidents during the year 1980. This is equivalent to one fatality for every 6,751 workers employed, compared with 8,597 in 1979.

Companies submitted detailed information on the causes of 49 of the fatal on-duty accidents. This information is reviewed herein. An increase occurred in the number of deaths where motor vehicles were involved, with 15 reported for 1980 compared with 8 in 1979.

Fatal on-duty accidents for 1980 are summarized, by functions and causes, and are compared with similar data for 1979 in Table I.

TABLE I

Fatalities by Functions and Causes, Years 1980 and 1979

	Cases Reported		Fire and Explosion		Struck by Equipment		Motor Vehicle		Aircraft		Other Causes	
	1980	1979	1980	1979	1980	1979	1980	1979	1980	1979	1980	1979
Total	49	32	14	9	2	4	15	8	4	1	14	10
Function:												
Exploration and Production	11	10	1	0	1	1	4	3	3	0	2	6
Gas Processing	2	1	0	0	0	1	0	0	0	0	2	0
Drilling	3	0	0	0	1	0	0	0	0	0	2	0
Chemicals	11	3	7	2	0	1	1	0	0	0	3	0
Refining	7	10	4	6	0	1	1	0	0	0	2	3
Marketing												
Wholesale	5	3	1	0	0	0	3	3	1	0	0	0
Retail	5	2	0	1	0	0	4	0	0	0	1	1
Pipeline												
Crude & Products	0	1	0	0	0	0	0	0	0	1	0	0
Gas	3	1	1	0	0	0	2	1	0	0	0	0
Marine	1	0	0	0	0	0	0	0	0	0	1	0
Research and Development	0	0	0	0	0	0	0	0	0	0	0	0
Engineering and General Services	0	0	0	0	0	0	0	0	0	0	0	0
Miscellaneous	1	1	0	0	0	0	0	1	0	0	1	0

EXPLORATION AND PRODUCTION

Struck by Truck

Employee was leading convoy of vehicles to work area. An eighteen-wheeler coming down the mountain lost its brakes. The driver jumped out of the truck and let it run free. The eighteen-wheeler crashed into the employee's pickup as he came out of a curve. The employee was killed instantly.

Experienced driver should have driven the eighteen-wheeler. The driver should have remained with the runaway truck and turned it off the road before jumping out.

Helicopter Crash

Helicopter was returning employees from off-shore drilling platform when it crashed, killing three employees.

All persons in the accident were killed and no cause has been determined.

Traffic Accident

Employee was driving behind two other vehicles at the time of the accident on a narrow caliche road (approximately 20 feet wide). The dust developed by these vehicles had created virtually zero driving visibility. The driver most likely could not determine his exact location on the road at the time of the accident and did not realize he was left of the center.

The cause of the accident was poor visibility and it could have probably been prevented if employee had waited until visibility had improved.

Explosion and Fire

Employee received fatal injuries as a result of explosion and fire on off-shore drilling rig.

Cause is under investigation.

Helicopter Crash

Employee was seated inside of helicopter when it fell from helicopter deck. Helicopter was attempting to take off from helicopter deck when it lost power and fell. Helicopter subsequently caught fire.

Accident is still under investigation.

Motor Vehicle Accident

Employee was involved in a motor vehicle accident which occurred around 5 a.m. He apparently did not see an eighteen-wheeler parked partially in the roadway and ran into the rear of that vehicle. Employee died as a result of the injuries received in this accident.

Motor Vehicle Accident

While driving alone in a company pickup truck, employee veered off the road and plunged down a deep canyon (approximately six hundred feet).

Exact cause is unknown.

Multiple Injuries

Employee was fatally injured while assisting in the repair of a cooling tower fan. He re-entered the cooling water tower fan area without his fellow employees' knowledge, at the same time the fan was started for a test run. He died from multiple injuries inflicted by the fan.

Lack of communication with all employees doing repair work is the primary cause of the accident. The cooling water fan area should have been inspected for clearance prior to energizing the fan starting switch.

GAS PROCESSING

Asphyxiation

Employee was working alone, while checking field operations, and was overcome by gas at a water flood injection station. He apparently detected a water leak at the station and was attempting to close some valves when he was overcome. He was found dead in the station by another employee.

Apparently the employee was not aware of the presence of the gas in the station where produced water from "sour" reservoirs is handled.

In addition to extra training and instructions, warning signs are posted. Gas monitor alarm systems and self-contained breathing appliances are being considered in order to prevent a recurrence of such accidents.

DRILLING

Fatal Fall

Employee was climbing the derrick to go to the crown area.

Employee did not use derrick-assist line to climb the derrick. The proper procedure would have been for one of the two men in the crown to come down with the belt and

then the deceased would have put the belt on before he climbed the derrick.

Drowning

Employee was last seen by co-workers six days before his body was discovered in Gulf waters. No one knew he fell overboard.

Struck by Equipment

Employee was scraping parafin on Unit and had just been let off on cribbing.

Since there were no witnesses, it was assumed that an extra long reel handle had struck the employee and he fell into the water.

Preventive measures include replacement of handle with proper size and enforcement of the rule which requires the wearing of life vests while working over water.

Head Injury

Employee was on a railroad car attaching slings to pipe that were to be unloaded. Deceased had completed hooking and was in the process of descending from the car when she apparently lost her balance and fell to the ground, striking her head on the railroad track.

Employee used the brake wheel as a stepping point. She should have used the fixed ladder on the side of the railroad car.

Pinned Between Equipment

Employee was operating air-spinner tongs on Trip in Hole. Tongs swung around pinning employee between snub line and stand of drill pipe in rotary table.

Our investigation indicated that the employee incorrectly attached the snub line to the guide post which allowed the Varco spinning tongs to swing around as described above.

Action has been taken to remove the hazard of incorrect rigging of snub line by continuing regular safety meetings which included instructions on proper and safe operation of spinning tongs and snub line connections as well as other usual functions conducted on the rig floor.

CHEMICALS

Fire and Explosion

Six employees were fatally injured in a fire and explosion at a Polymer plant. The incident is still under investigation.

Fatal Burns

A seal failure occurred in a fractionator pump in the FCC Unit. Subsequent to the seal failure the pump bearing failed, destroying the Bearing Housing, which caused a major leak to develop. The employee, who was working in the operating unit, heard the seal failure and notified the other operators that he would switch pumps. The major leak of fractionation materials flashed, severely burning the employee who subsequently died approximately one week later.

Fatal Body Injuries

During the period of the refinery strike, the employee was working alone. He was operating a crane and somehow he got caught under the right rear wheel of the crane, incurring fatal injuries to abdominal area and legs.

Cause of the accident is unknown There were no witnesses.

Inhalation of Nitrogen

Employee was grinding in a cherry picker, using air mask. He hooked up a new oxygen bottle to the mask. The bottle was marked oxygen but unfortunately it contained nitrogen. The employee was found slumped over five minutes later.

As a preventative measure, all bottles should be checked before use. Also more careful observation must be made by the person on watch.

Electrocution

Employee accidentally came in contact with high voltage electric equipment in preparation for maintenance. He was killed instantly.

Electrocution can be prevented by employees following company procedures and insuring that the equipment is deenergized prior to maintenance.

Pulled into Machinery

Employee was attempting to clean a machine roll with a handy wipe towel while the Fiberline machine was running at full speed. The towel and his hand became entangled with the fiberline tow and he was pulled into the machinery. He died from multiple injuries.

The Fiberline machine should have been completely shut down before the cleaning operation began because op-

erating instructions recommended that machinery be shut down before such cleaning work is performed.

As a preventative measure, electrical sensors have been installed which will de-energize the equipment before an employee could enter the danger zone.

REFINING

Flash Fire

Two employees were burned when a flash fire occurred in the compression area of the FCC unit, resulting in death of both.

Reckless Driving

A group of employees were doing road maintenance work along the refinery grounds. While this maintenance work was being done, a semi-truck, traveling at a high rate of speed, crashed into the employees after ignoring a flagman and a sign truck with flashers and a rotating light on the cab roof. One employee was killed and two others were critically injuried.

Witnesses at the scene stated that at no time did the driver of the semi-truck apply his brakes or make any attempt to avoid the collision.

The incident is still under investigation.

Faulty Equipment

The gas-oil feed line to the coker unit ruptured and caused a fire, killing employee.

The unit was installed approximately fifteen years ago, and the contractor used a four foot section of pipe that did not meet the specifications.

Respiratory Failure

The employee succumbed while attempting to collect a BS&W sample through an open manhead of a tank which had been in toluene service. The product had been pumped out and the manhead removed preparatory to readying the tank for a different service.

Contrary to written tank entry procedures, the employee failed to wear respiratory protective equipment when he entered the storage tank.

Preventive measures is to stress tank entry procedures in all departments.

Heart Attack

The employee had been under undue stress due to having worked unusual schedule and performing unusual work for nine consecutive days preceding death. Employee had climbed several flights of stairs just prior to collapse. He had a heart attack and died.

MARKETING—WHOLESALE

Obstruction on Dark Highway

A Motor Fuel Transport, rounding a curve on a rural two lane highway, struck a black bull with the right front of the vehicle. After impact, vehicle came to rest partially in the roadway, ditch and adjacent field. Vehicle apparently exploded, burning driver and entire vehicle.

Car Accident

Vehicle #1 was traveling south on a straight road. The other vehicle, traveling north, cross over into the southbound lane and skidded into front of vehicle #1. Vehicle #1 veered to the right into a shallow ditch and burst into flames. Drivers of both vehicles burned in the wreckage.

Road and Weather Conditions

The vehicle in right lane skidded out of control on icy roadway into the path of a truck. Contact was made by right front wheel of truck with left front fender and wheel of other vehicle, causing driver to lose control. Truck struck right guard rail of overpass and skidded atop it for approximately 150 feet. At the end of the guard rail, the truck rolled over and slid down embankment killing driver.

Crushed to Death

The tank truck was sideswiped by an on-coming truck and trailer causing tank truck to go over an embankment. Employee was thrown from cab and, as truck rolled over, was crushed to death under drive wheels of truck.

Tank Truck Collision

Tank exploded on impact, killing employee when struck by another company's truck. The force of the explosion caused the death of another employee, who was standing beside our truck when it exploded.

Lost Control of Vehicle

Employee lost control of his tank truck and ran off a tollroad expressway, through a guard rail, and into a ditch. He sustained fatal injuries in the vehicle accident. The employee was alone in the vehicle at the time of the accident.

Exact cause not determined.

Asleep at Wheel

Employee was driving petroleum transport loaded with gasoline, when transport ran off right shoulder and down a fifteen foot embankment causing the vehicle to roll over several times. Driver was apparently ejected from driver's side to a position approximately sixty feet from final position of tractor. Driver was apparently killed instantly.

No mechanical defects were found in the initial investigation. Statements from witnesses and State Highway Patrol related that driver appeared to have fallen asleep.

These accidents can be prevented by stressing the importance of getting proper rest before reporting to work. Also, instruct drivers to park vehicle if sleepy and not continue to drive until able to do so in a safe manner.

MARKETING—RETAIL

Robbery

Store had converted to the use of exact cash. Employee was approached by suspect while walking from sales room to full service island. Employee had no company money on him. Robber took employee's wallet and rifled his pockets. There may have been a scuffle and employee was shot through the heart with a hand gun and was dead on arrival at the Medical Center.

PIPELINE—GAS

Collision

While driving on a two-landed good highway at about 50 mph in a one-ton welding truck with two passengers, the Company driver saw an approaching car angling into his lane. He tried to avoid a collision by veering left because there was a sharp embankment to the right. The oncoming driver then swung back toward his correct lane and the two vehicles then collided. The three employees were in the front seat of the Company vehicle. The driver and middle passenger were seriously injured and the employee seated next to the passenger side door was killed instantly.

Boating Accident

Employee was returning from an off-shore platform aboard a crew supply boat. The supply boat was struck by a freighter which cause the employee to be thrown overboard. The employee drowned.

Inclement weather and darkness were the cause of the accident.

All employees will be required to wear a life jacket or work vest while traveling aboard a Marine vessel to prevent mishaps in the future.

Massive Head Injuries

Employee killed while operating a valve, was attempting to operate it when head work assembly separated from valve body. This caused a sudden release of high pressure natural gas. Employee received massive head injuries which resulted in his death.

MARINE

Fatal Fall

The tanker vessel was in the yard for repair. A new 2½ inch neoprene jacketed fire hose was connected to the manifold and the ship's pipelines were being hydro tested at 150# to 225# pressure. There was air trapped in the piping system. The end of the hose pulled out of its coupling and the full stream of water hit a nearby employee in the chest. In his efforts to resist, he turned and the water struck him in the back. The force of the stream projected him over the side of the ship and he was fatally injured in the fall.

MISCELLANEOUS

Electrocuted

Employee was attempting to remove a high line (hot leg) from the old pole to the new pole when he came in contact with high voltage and was electrocuted.

Preventative measures:

1. De-energize all electrical equipment before any maintenance is performed.
2. A positive lockout and tag policy and procedure should be adhered to during maintenance and construction activities.